REMARKS

This Amendment is filed in response to the Office Action dated August 1, 2007, which has a shortened statutory period set to expire November 1, 2007. A Petition for a one month extension of time extending the period of response to December 1, 2007 is included herewith.

Claims 1, 3-15, 17-38, 40-51, And 53-71 Are Patentable Over The Cited References

Claims 1, as amended, now recites in part:

> wherein at least some of the M complex weights are normalized to satisfy an Effective Isotropic Radiated Power (EIRP) limit and a per-chain power limit.

Applicant notes that this limitation was formerly recited in Claim 16. Therefore, Applicant addresses the rejection of Claim 1 with respect to Sugar and Medvedev.

Applicant respectfully submits that Sugar and Medvedev do not teach this limitation. The Examiner admits that Sugar fails to disclose this limitation, but then cites col. 8, lines 43-61 of Medvedev to remedy this deficiency. This passage teaches that a water-filling transmission scheme can optimally allocate the total transmit power to the N_S spatial subchannels such that capacity is achieved.

In col. 8, lines 13-33, Medvedev describes a "water-filling" scheme as follows:

> The water-filling scheme allocates the total transmit power, P_{tot}, to the eigenmodes such that transmission capacity (i.e. spectral efficiency) is maximized. The water-filling scheme is analogous to pouring a fixed amount of water into a vessel with an irregular bottom, where each eigenmode corresponds to a point on the bottom of the vessel, and the elevation of the bottom at any given point corresponds to the inverse of the signal-to-noise ratio (SNR) associated with

> that eigenmode. A low elevation thus corresponds to a high SNR and, conversely, a high elevation corresponds to a low SNR. The total transmit power, P_{tot}, is then "poured" into the vessel such that the lower points in the vessel (i.e., higher SNRs) are filled first, and the higher points (i.e., lower SNRs) are filled later. The power distribution is dependent on the total transmit power, P_{tot}, and the depth of the vessel over the bottom surface. The water surface level for the vessel after all of the total transmit power has been poured is constant over all points in the vessel. The points with elevations above the water surface level are not filled (i.e., eigenmodes with SNRs below a particular threshold are not used).

Applicant respectfully submits that this water-filling scheme does not disclose or suggest EIRP.

EIRP is the power that would have to be emitted by an isotropic antenna to produce the peak power density observed in the direction of maximum antenna gain. EIRP takes into account the transmitter output power, the antenna gain, and losses from cabling/connectors. Notably, limits on total EIRP are measured per antenna, not per system. Applicant has described an exemplary EIRP-based algorithm in the Specification, page 11, line 19 to page 13, line 10.

Because Sugar and Medvedev fail to disclose or suggest normalizing at least some of the M complex weights to satisfy an EIRP limit and a per-chain power limit, Applicant requests reconsideration and withdrawal of the rejection of Claim 1.

Claims 3-15 and 17-37 depend from Claim 1 and therefore are patentable for at least the reasons presented for Claim 1. Applicant notes that the other references cited to reject these dependent claims (i.e. Ma, Hottinen, Sugar II, Gore, and Ikegami), also fail to disclose or suggest normalizing at least some of the M complex weights to satisfy an EIRP limit and a per-chain power limit. Thus, these references fail to remedy the deficiency of Sugar and Medvedev with respect to Claim 1.

Therefore, Applicant requests reconsideration and withdrawal of the rejection of Claims 3-15 and 17-37.

Claim 38, as amended (to include the limitations of former Claim 52), now recites in part:

> calculating M complex weights for each of the N frequency bins based on channel estimates of the different communication channels, wherein at least some of the M complex weights are normalized to satisfy an Effective Isotropic Radiated Power (EIRP) limit and a per-chain power limit.

Therefore, Claim 38 is patentable for substantially the same reasons presented for Claim 1. Based on those reasons, Applicant requests reconsideration and withdrawal of the rejection of Claim 38.

Claims 40-51 and 53-71 depend from Claim 38 and therefore are patentable for at least the reasons presented for Claim 38. Applicant notes that the other references cited to reject these dependent claims (i.e. Ma, Hottinen, Sugar II, Gore, and Ikegami), also fail to disclose or suggest normalizing at least some of the M complex weights to satisfy an EIRP limit and a per-chain power limit. Thus, these references fail to remedy the deficiency of Sugar and Medvedev with respect to Claim 38. Therefore, Applicant requests reconsideration and withdrawal of the rejection of Claims 40-51 and 53-71.

Applicant Addresses Rejection Of Claim 35

Applicant has amended Claims 35 and 69 to recite, "wherein the less than all of the M antennas transmit on communication channels having a predetermined quality measure". Support for this amendment is provided in the Specification, page 10, lines 18-24. Therefore, Applicant requests reconsideration and withdrawal of the rejection of Claim 35 as being indefinite.

CONCLUSION

Claims 1, 3-15, 17-38, 40-51, and 53-71 are pending in the present application. Allowance of these claims is respectfully requested.

If there are any questions, please telephone the undersigned at 408-451-5907 to expedite prosecution of this case.

Respectfully submitted,

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